

## EPICARIDEA (ISOPODA) OF HAWAII

CHARLES G. DANFORTH  
3612 Angelus Avenue  
Glendale, California 91208

**ABSTRACT:** A new form of the bopyrid *Ionella* is described. *Ionella murchisoni*, n. sp. is the sixth species of parasitic isopod in the Epicaridea suborder to be reported from the State of Hawaii, and is the first of this genus to be found outside of Chile.

### INTRODUCTION

A new form of a previously monospecific genus of the Bopyridae is here described from Hawaii. This represents the sixth genus of parasitic epicarid isopods so far reported from this State. The Hawaiian specimens described to date are:

#### Bopyridae:

*Entophilus omnitectus* Richardson, 1904.

*Gigantione hawaiiensis* Danforth, 1967.

*Scyracepon hawaiiensis* Richardson, 1911.

#### Cryptoniscidae:

*Faba glabra* Nierstrasz and Brender à Brandis, 1931.

#### Dajidae:

*Zonophryxus retrodens* Richardson, 1904.

#### Entoniscidae:

None.

Of the foregoing, *Entophilus*, *Faba* and *Zonophryxus* were also new genera at the time of the erection of the species shown. References by Richardson (1905, Figs. 630, 634) to *Bopyroides hippolytes* (Krøyer) on Hawaiian *Spirontocaris securifrons* hosts are apparently in error.

### ***Ionella murchisoni*, new species**

*Ionella* Bonnier 1900, p. 322.

Material: A pair of bopyrids.

Host: *Callianassa* sp.

Area: Sand Island, Kaneohe Bay, Oahu, Hawaii.

Date: 25 February 1965.

Collector: Earl Murchison.

*Female.* From the right gill chamber of the host shrimp; color bright yellow in preservative, with whitish head and pleura; little lateral

twisting, although the left side is larger than the right; general form oval, with the long axis transversely oriented; no pigment spots evident; length 3.2 mm, width 4.6 mm.

Head. Very large and square, with a slight posterior indication of bilobed condition; no velum; no eyes; antero-lateral corners of the cephalon project, 2 medial salients on the anterior border; antennae large and visible from the dorsal aspect; color white in comparison to the general yellow tone of the body proper.

Thorax. Seven segments with weakly indicated demarcations; only thoracomere I can be traced from side to side, all others blend medially into a slightly elevated, circular mass with no decipherable internal structure; triangular pleural bosses and anvil-shaped coxal plates on thoracomeres I-IV; segments V-VII terminate laterally in blunt antero-lateral projections, each with a faint indication of a postero-lateral lobe; seven pairs of small pereopods, II-VII having progressively larger and unusual, swellings of basipodites and ischiopodites; marsupium vaulted and completely covered by imbricating oostegites, pair V with fine bordering hairs.

Pleon. Wide, flat and triangular, with no dorsal evidence of segmentation; slight pleomere indications on the ventral aspect, with but 4 segments discernable; border essentially smooth, but with 8 knob-like peripheral projections visible on each side from the dorsal view; Pleopods not visible from the dorsum; individual pleopod parts difficult to analyze; the exopodite with an elongate, pinnate shape, and the endopodite as 2 basal bulbs or tuberosities; these latter are quite similar to the knob-like projections of the pleural plates on pleomeres I-II; pleomere V a biramous digitation, with the medial process about 3 times as long as the lateral one. If the foregoing interpretation is correct, the sixth segment is a very small mass between pleopods V, and has 2 minor plates projecting posteriad as the uropoda.

*Male.* Color pale yellow in preservative; body progressively wider to thoracomeres VI-VII; length 2.3 mm, width 1.0 mm.

Head. Two large brown eye-spots along the posterior border; antennae II visible from the dorsal aspect, quite long; antennae I short, 2-jointed; oral cone with a brown-pigmented tip.

Thorax. Seven clearly delineated segments, with non-contiguous ends; no dorsal pigment spots; seven pairs of large pereopods; no ventral elevations in the mid-line.

Pleon. Six segments, VI very tiny and surrounded except at the posterior, by V; definite pigment spots at the posterior margin of the sternal-pleural plate contacts for pleomeres I-V; entire pleon rolled under somewhat, so that the pigment spots on segment V appear similar

to eyes; pleural plates non-contiguous; five pairs of biramous pleopods, each endopodite and exopodite pair arising from a common peduncle; rami finger-like, with the medial larger than the lateral branch, and overlapping its counterpart somewhat at the mid-line; uropods extremely tiny, as a short rod on the right and a slight swelling on the left.

*Remarks.* Bonnier (1900) established *Ionella agassizi* from *Calianassa uncinata* Milne-Edwards at Talcahuano (near Concepcion), Chile. Shiino (1964a), studied examples of the same parasite species from the same host species at Puerto Montt (about 300 miles south of Talcahuano), Chile. There have been no other records of the form, although Nierstrasz and Brender a Brandis (1929) mentioned *Ionella* in one of their bopyrid keys. Consequently it is of considerable interest to find *Ionella* at a locale distant from its original discovery area.

In general, the new species conforms to the description of *I. agassizi*, with the pleon border and pleopoda of the female being the major points of difference. As far as the male is concerned, the relative sizes of the uropoda and pleopoda rami are at variance. In *I. purchisoni*, uropoda, if present, are extremely tiny, while in *I. agassizi* the uropoda are definite, small rods. With respect to the pleopoda of the male, Bonnier indicated that the exopodites were slightly larger than the endopodites for *I. agassizi*; the reverse is true for *I. purchisoni*. It is of interest that Shiino (1964a) found in his specimens that there was no common peduncle for the biramous pleopods; such a peduncle is present in both Bonnier's and the new species.

In the female, there are 2 major differences evident between *I. agassizi* and *I. purchisoni*. The pleon border of the former is smooth except for slight segmental notches, and the biramous pleopoda have broadly foliaceous exopodites and similar (but 2-pointed) endopodites. In the latter, the pleon border has bulbous swellings which diminish in size from I to IV, and each of the biramous pleopoda has a pinnate exopodite and a double-swelling representing the endopodite.

A change from a partially bilobed pleopod endopodite in *I. agassizi* to a double-tuberosity in *I. purchisoni* would not be unusual among bopyrids, but a change from a foliaceous to a pinnate pleopod exopodite would be less expected. For comparison, the illustration of the ventral pleon of *Pseudione compressa* Shiino (1964b, Fig. 2) is somewhat similar to the appearance of the same area of *I. purchisoni*. However, many other features of both the male and female of *Pseudione compressa* (pereopoda, male pleopoda, oostegites, dorsal pleon of the female, dorsal percon and coxal plates of the female, etc.) are strikingly different.

I am indebted to Dr. Henry B. Roberts of the Smithsonian Institution

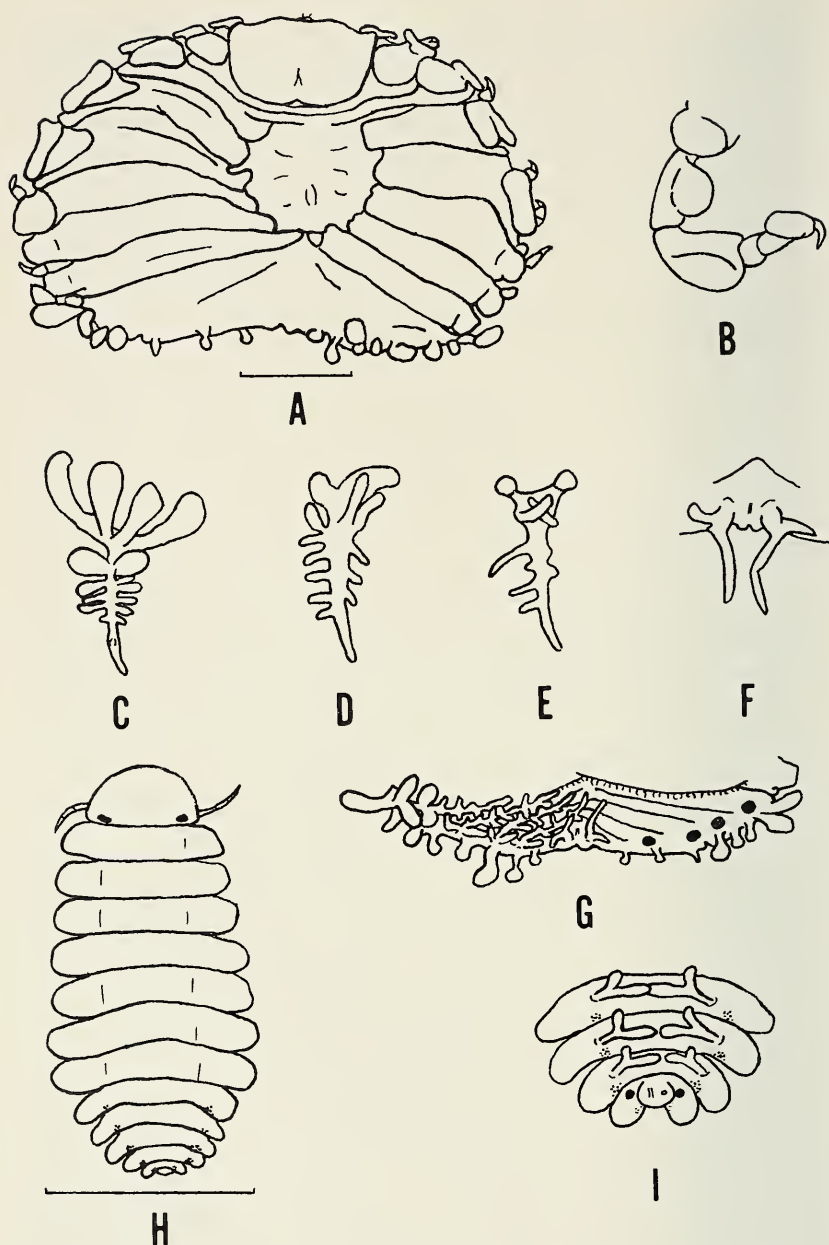


Figure 1. *Ionella purchisoni*, n. sp. A. Dorsal view of adult female. B. Right pereopod VI of female, showing unusual plates. C. Appendages of left pleomere I of female. D. Appendages of left pleomere III of female. E. Appendages of left

for the identification of the host, which itself is apparently new. Dr. Roberts wrote (letter of 12 April 1967) that the specimen "is distinctly different from any of the nominate species of *Callianassa* that have been reported from the Hawaiian region."

The new *Ionella* is named after Mr. Earl Murchison, Zoology Department, University of Hawaii, who has most kindly kept on the lookout for my little parasites. Mr. Murchison reports that a second infested host was accidentally lost.

The female holotype and male allotype were deposited in the Allan Hancock Foundation collection as catalog numbers 6513 and 6513a, respectively.

#### LITERATURE CITED

- BONNIER, J. 1900. Contribution à l'Étude des Épicarides: Les Bopyridae. *Publications de la Station Zoologique de Wimereux. II. Travaux de la Station.* 8: 1-478.
- DANFORTH, C. 1963. First record of a Hawaiian shore bopyrid (Isopoda: Bopyridae). *J. Parasitol.*, 49: 847-850.
- . 1967. Northern Pacific *Gigantione* (Isopoda). *Biol. Bull.*, 132: 147-155.
- NIERSTRASZ, H., AND G. BRENDER À BRANDIS. 1929. Papers from Dr. Th. Mortensen's Pacific Expedition, 1914-1916. Epicaridea I. *Videnskabelige Meddelelser fra Dansk naturhistorisk Forening i København*, 87(48): 1-44.
- . 1931. Three new genera and five new species of parasitic Crustacea. *Proc. U. S. Nat. Mus.*, 77(9): 1-9.
- RICHARDSON, H. 1904. Contributions to the natural history of the Isopoda. Second Part. V. Isopod crustaceans of the Northwest coast of North America. *Proc. U. S. Nat. Mus.*, 27: 657-681.
- . 1905. A monograph on the isopods of North America. *Bull. U. S. Nat. Mus.*, 54: 1-727.
- . 1911. Description of a new parasitic isopod from the Hawaiian Islands. *Proc. U. S. Nat. Mus.*, 38: 645-647.
- SHIINO, S. 1964a. On two species of bopyrid isopods parasitic on *Callianassa uncinata* Milne-Edwards from Chile. *Report of Faculty of Fisheries, Prefectural University of Mie*, 5: 27-32.
- . 1964b. Results of Amami Expedition. 5. Bopyridae. *Report of Faculty of Fisheries, Prefectural University of Mie*, 5: 237-242.

Accepted for publication November 30, 1969.

---

pleomere IV of female. F. Left and right pleopoda V of female, with intervening pleomere VI. G. Ventral pleon of female, left pleopoda I-IV removed. H. Dorsal view of adult male. I. Ventral aspect of pleomeres II-VI of male, pleopoda V removed.